

## CLAIMS

I claim:

1) A fault tolerant headend system comprising:

at least two headend elements, a first headend element and an adjacent headend element;

5 at least one switching device having an output port capable of connecting to one of at least two inputs ports wherein one input port is connected to said first headend elements and another input port is connected to said adjacent headend element;

wherein said output port of each switching device is connectable to an output cable;

wherein said adjacent headend element is capable of taking over functioning of said first

10 headend element; and

at least one of said headend elements is a spare headend element.

2) The system according to claim 1 wherein a plurality of said switching devices are configurable in modular fashion wherein individual switching devices are installable and  
15 removable to scalably configure capacity.

3) The system according to claim 1 wherein said headend system is a cable headend system.

20 4) The system according to claim 1 wherein each of said switching devices is a 2 to 1 switching device having two input ports and one output port.

5) The system according to claim 1 wherein each of said switching devices is a 3 to 1 switching device having three input ports and one output port.

6) The system according to claim 1 wherein said first headend element includes state information; said state information accessible by said adjacent headend element.

7) The system according to claim 1 further including a plurality of headend elements arranged in a row, wherein if one headend element fails, said switching devices shift at least one headend element so that an adjacent headend element to said failed headend element takes over for said failed headend element; and said spare headend element takes over for a headend element adjacent to said spare headend element.

8) A method of providing a fault tolerant headend system comprising:

connecting a plurality of adjacent headend elements to a series of switching devices wherein at least one of said headend elements is a spare headend element and wherein each headend element is capable of taking over functioning of at least one adjacent headend element;

5 detecting a fault in one of said headend elements;

shifting headend elements, comprising:

configuring a headend element adjacent to said fault detected headend elements to take over functioning of said fault detected headend elements; and

changing a state of specific switching devices to connect said adjacent headend element to an output cable of said fault detected headend elements; and

10 performing said steps of shifting headend elements in the direction of a spare headend element, until the spare element is connected to an output cable.

9) The method according to claim 8 further comprising the steps of refreshing said failed element to serve as a new spare element.